

IN THE CLAIMS

This listing of claims will replace all prior versions of listings of claims in this application.

Claims 1-7 (Canceled).

8. (Currently amended) A pharmaceutical preparation comprising[;] a therapeutically effective amount of at least one compound of the formula I as claimed in at least one of claims 14 to 19 or its physiologically tolerable salts and a pharmaceutically acceptable carrier.

9. (Currently amended) A pharmaceutical composition comprising a therapeutically effective amount of a compound of the formula I as claimed in at least one of claims 14 to 19 and their physiologically tolerable salts, or their prodrugs for inhibition of factor Xa and/or factor VIIa or for influencing blood coagulation, inflammatory response, or fibrinolysis.

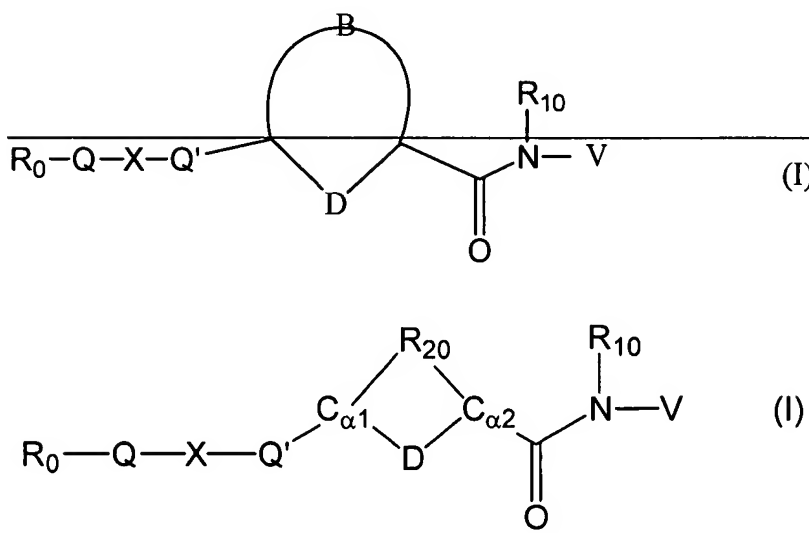
10. (Previously Presented) A method of treating blood coagulation disorders, inflammation, fibrinolysis, cardiovascular disorders, restenosis, transient ischemic attacks, and thrombosis comprising administering the pharmaceutical preparation of claim 8 to a host in need thereof.

11. (Previously Presented) A prodrug of the compound of the formula I as claimed in claim 9, wherein the prodrug is chosen from an acyl prodrug, a carbamate prodrug, an ester prodrug, and an amide prodrug.

12. (Previously Presented) The (C₁-C₆)-acyl prodrug according to claim 11.

13. (Previously Presented) The (C₁-C₆)-alkyloxycarbonyl prodrug according to claim 11.

14. (Currently amended) A compound of formula (I),



wherein C_{α1} and C_{α2} are independently selected from -CH- and -C-;

wherein R₂₀ is selected from

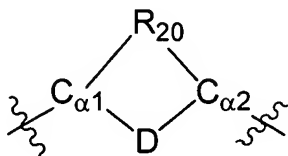
C₃ alkyl wherein at least one carbon is replaced with nitrogen, sulfur, or
oxygen.

wherein each carbon or heteroatom is unsubstituted or mono-, or disubstituted independently of one another by R¹,

C₃ alkenyl wherein each carbon is unsubstituted or mono-, or disubstituted independently of one another by R¹, and

C₃ alkenyl wherein at least one carbon is replaced with nitrogen, sulfur, or oxygen,

wherein each carbon or heteroatom is unsubstituted or mono-, or disubstituted independently of one another by R¹;



wherein the ring comprising is selected from

phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹, and

pyridyl, wherein pyridyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;

R₀ is phenyl, wherein phenyl is mono-, di- or trisubstituted independently of one another by R², or a mono- or bicyclic 5- to 10-membered heteroaryl containing one or two nitrogen atoms as ring heteroatoms, wherein heteroaryl is unsubstituted or mono-, di- or trisubstituted independently of one another by R²;

R² is -NO₂[:], halogen[:], -CN[:], -OH[:], -NH₂[:], (C₁-C₈)-alkyloxy-, wherein alkyloxy is unsubstituted or mono-, di- or trisubstituted independently of one another by

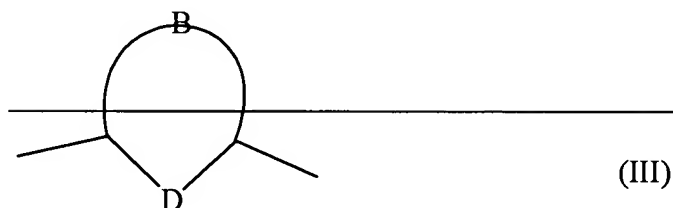
halogen, amino group, hydroxy group or methoxy group₁ or -(C₁-C₈)-alkyl, wherein alkyl is unsubstituted or mono-, di- or trisubstituted independently of one another by halogen, amino group, hydroxy group or methoxy group;

Q and Q' are different and are a direct bond, or -O-;

R₁₀ is a hydrogen atom, or (C₁-C₄)-alkyl-;

X is (C₁-C₆)-alkylene, wherein alkylene is unsubstituted or mono-, di- or trisubstituted independently of one another by halogen, amino group or a hydroxy group;

~~the substructure of formula III~~



~~wherein B, together with D and the two carbon atoms to which D is attached, represents~~

~~a) a mono or bicyclic 5 to 10 membered carbocyclic aryl group, wherein said 5 to 10 membered carbocyclic aryl group is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

~~b) phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

~~e) a mono- or bicyclic 5 to 10-membered heterocyclic group (Het),
containing one or more heteroatoms chosen from nitrogen, sulfur, and oxygen,
wherein said Het group is unsubstituted or mono-, di- or trisubstituted
independently of one another by R¹; or~~

~~d) pyridyl, wherein pyridyl is unsubstituted or mono-, di- or trisubstituted
independently of one another by R¹;~~

D is carbon, oxygen, sulfur, or nitrogen;

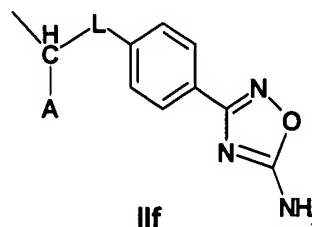
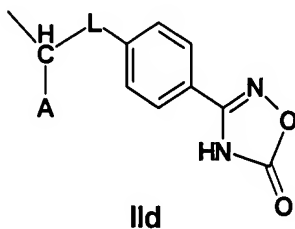
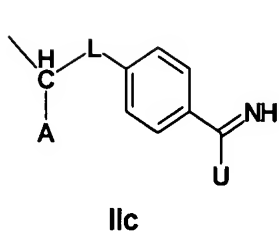
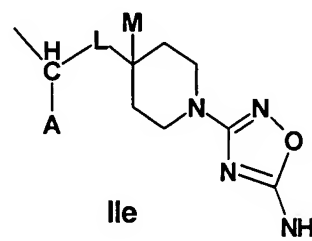
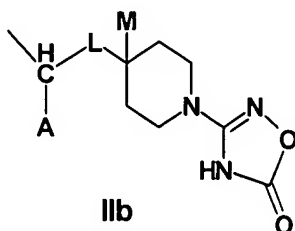
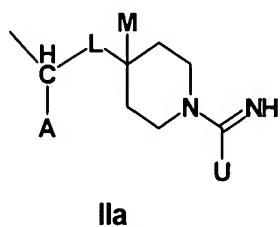
R¹ is a halogen[;]₁, -OH[;]₁, -SO₂-NH₂[;]₁, -NO₂[;]₁, -CN[;]₁, R¹¹R¹²N-, wherein R¹¹R¹² independently of one another are a hydrogen atom, (C₁-C₄)-alkyl-, or (C₁-C₆)-acyl[;]₁, (C₁-C₈)-alkylamino-, (C₁-C₈)-alkyloxy-, (C₁-C₈)-alkyl-, hydroxycarbonyl-(C₁-C₈)-alkylureido-, (C₁-C₈)-alkyloxycarbonyl-(C₁-C₈)-alkylureido-, or (C₁-C₈)-alkylsulfonyl-, wherein the alkyl of each group is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³[;]₁, (C₆-C₁₄)-aryl, wherein aryl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³[;]₁ or -C(O)-NR¹⁴R¹⁵, wherein R¹⁴R¹⁵ independently of one another are hydrogen atom or (C₁-C₄)-alkyl-, or

two R¹ residues bonded to adjacent ring carbon atoms together with the carbon atoms to which they are bonded form an aromatic ring condensed to the ring depicted in formula I, where the ring formed by the two R¹ residues is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³, R¹¹ and R¹² together with the nitrogen atom to which they are bonded form a saturated or unsaturated 5- to 6-membered monocyclic heterocyclic ring which in addition to the nitrogen atom carrying

R^{11} and R^{12} can contain one or two identical or different ring heteroatoms chosen from oxygen, sulfur and nitrogen, and in which one or two of the ring carbon atoms can be substituted by oxo to form C(O)- residue(s);

R^{13} is halogen, $-\text{NO}_2$, $-\text{CN}$, $-\text{OH}$, $(\text{C}_1\text{-C}_8)\text{-alkyl-}$, $(\text{C}_1\text{-C}_8)\text{-alkyloxy-}$, $-\text{CF}_3$, or $-\text{NH}_2$;
and

V is a residue of the formulae IIa, IIb, IIc, IId, IIe or IIf[\cdot]₁



wherein

L is a direct bond or $(\text{C}_1\text{-C}_3)\text{-alkylene}$, wherein the alkylene is unsubstituted or mono-, di- or trisubstituted independently of one another by A;

A is a hydrogen atom[\cdot]₁, $-\text{C}(\text{O})\text{-OH}$ [\cdot]₁, $-\text{C}(\text{O})\text{-O-}(\text{C}_1\text{-C}_4)\text{-alkyl}$, or $(\text{C}_1\text{-C}_4)\text{-alkyl-}$, wherein the alkyl of each group is unsubstituted or mono-, di- or tri-substituted independently of one another by $-\text{OH}$, $-\text{NH}_2$ or $-(\text{C}_1\text{-C}_4)\text{-alkoxy}$ [\cdot]₁, $-\text{C}(\text{O})\text{-NR}^4\text{R}^5$ [\cdot]₁, $-\text{SO}_2\text{-NH}_2$ [\cdot]₁ or $-\text{SO}_2\text{-CH}_3$;

U is -NH₂, (C₁-C₄)-alkyl-, -NH-C(O)-O-(C₁-C₄)-alkyl, or -NH-C(O)-O-(C₁-C₄)-alkyl-aryl;

M is a hydrogen atom, (C₁-C₃)-alkyl-, or -OH₁;

R⁴ and R⁵ are independently of one another identical or different and are a hydrogen atom, (C₁-C₁₂)-alkyl-, wherein alkyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³ as defined above, (C₆-C₁₄)-aryl-(C₁-C₄)-alkyl-, wherein alkyl and aryl are unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³ as defined above, (C₆-C₁₄)-aryl-, wherein aryl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³ as defined above; Het-, wherein Het- is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³ as defined above; or Het-(C₁-C₄)-alkyl-, wherein alkyl and Het- are unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³ as defined above; or

R⁴ and R⁵ together with the nitrogen atom to which they are bonded form a saturated 3- to 8-membered monocyclic heterocyclic ring which in addition to the nitrogen atom carrying R⁴ and R⁵ can contain one or two identical or different ring heteroatoms chosen from oxygen, sulfur and nitrogen;

in all its stereoisomeric forms and mixtures thereof in any ratio, or its physiologically tolerable salts.

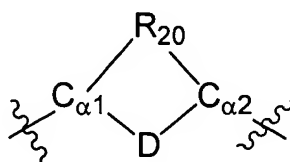
15. (Currently amended) A compound of formula I as claimed in claim 14,
wherein

R_0 is phenyl, wherein phenyl is mono-, di- or trisubstituted independently of one another by R^2 [:]₁, or pyridyl, wherein pyridyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R^2 ;

R^2 is $-\text{NO}_2$ [:]₁, halogen[:]₁, $-\text{CN}$ [:]₁, $-\text{OH}$ [:]₁, $-\text{NH}_2$ [:]₁, $(\text{C}_1\text{-C}_4)\text{-alkyloxy-}$, wherein alkyloxy is unsubstituted or mono-, di- or trisubstituted independently of one another by halogen, amino group, hydroxy group or methoxy group[:]₁, or $-(\text{C}_1\text{-C}_4)\text{-alkyl}$, wherein alkyl is unsubstituted or mono-, di- or trisubstituted independently of one another by halogen, amino group, hydroxy group or methoxy group;

Q , Q' , X , R^1 , R^{11} and R^{12} are as defined in claim 14,

D is carbon or nitrogen[:]₁;



wherein the ring comprising  is selected from

phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted

independently of one another by R^1 , and

pyridyl, wherein pyridyl is unsubstituted or mono-, di- or trisubstituted

independently of one another by R^1 ;

wherein R_{20} , $C_{\alpha 1}$, and $C_{\alpha 2}$ are as defined in claim 14;

~~the substructure of formula III is phenyl or pyridyl, wherein phenyl and pyridyl independently of one another are unsubstituted or mono-, di- or trisubstituted independently of one another by R⁴;~~

R¹³ is halogen, -NO₂, -CN, -OH, (C₁-C₄)-alkyl-, (C₁-C₄)-alkyloxy-, -CF₃, or -NH₂;

R₁₀ is a hydrogen atom or methyl; and

V is a fragment of formulae IIa, IIb, IIc, IId, IIe, or II f as defined above; wherein

L, U, M, R⁴ and R⁵ are as defined in claim 14, and

A is hydrogen atom[;]₁, -C(O)-OH[;]₁, -C(O)-O-(C₁-C₄)-alkyl, or (C₁-C₄)-alkyl-, wherein the alkyl of each group is unsubstituted or mono-, di- or tri- substituted independently of one another by -OH, -NH₂ or -(C₁-C₄)-alkoxy; or -C(O)-NR⁴R⁵.

16. (Currently amended) A compound of the formula I as claimed in claim 14, wherein

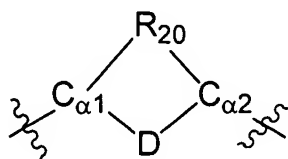
R₀ is phenyl or pyridyl, wherein phenyl and pyridyl independently of one another are mono-, di- or trisubstituted independently of one another by R²;

R² is -NH₂[;]₁, halogen[;]₁, -CN[;]₁, -OH[;]₁, (C₁-C₄)-alkyloxy-, wherein alkyloxy is unsubstituted or substituted by an amino group[;]₁ or -(C₁-C₄)-alkyl, wherein alkyl is unsubstituted or substituted by an amino group;

Q and Q' are different and are a direct bond or -O-;

X is a (C₁-C₄)-alkylene, wherein alkylene is unsubstituted or mono-, di- or tri-substituted independently of one another by halogen, amino group or a hydroxy group;

D is carbon or nitrogen;



wherein the ring comprising

is selected from

phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted

independently of one another by R¹, and

pyridyl, wherein pyridyl is unsubstituted or mono-, di- or trisubstituted

independently of one another by R¹;

wherein R₂₀, C_{α1}, and C_{α2} are as defined in claim 14;

~~the substructure of formula III is phenyl or pyridyl, wherein phenyl and pyridyl independently of one another are unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

R¹ is halogen[₁], -OH[₁], -SO₂-NH₂[₁], -NO₂[₁], -CN[₁], -NH₂[₁], (C₁-C₄)-alkylamino-, (C₁-C₄)-alkyloxy-, (C₁-C₄)-alkyl-, or (C₁-C₄)-alkylsulfonyl-, wherein the alkyl of each group is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³; (C₆-C₁₄)-aryl, wherein aryl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³; -C(O)-NR¹⁴R¹⁵, wherein R¹⁴R¹⁵ independently of one another are hydrogen atom or (C₁-C₄)-alkyl-; R¹¹R¹²N-, wherein R¹¹ and R¹² are as defined above; or -NR⁴R⁵;

R¹³ is halogen, -NO₂, -CN, -OH, (C₁-C₄)-alkyl-, (C₁-C₄)-alkyloxy-, -CF₃, or -NH₂;

R₁₀ is a hydrogen atom or methyl; and

V is a fragment of formulae IIa, IIb, IIc, IId, IIe or II f as defined above, wherein

L is a direct bond or (C₁-C₃)-alkylene-;

A is a hydrogen atom, -C(O)-OH, -C(O)-O-(C₁-C₄)-alkyl, -C(O)-NR⁴R⁵, or (C₁-C₄)-alkyl-;

U is -NH₂, methyl, -NH-C(O)-O-(C₁-C₄)-alkyl, or -NH-C(O)-O-(CH₂)-phenyl;

M is a hydrogen atom, (C₁-C₃)-alkyl-, or -O; and

R⁴ and R⁵ are independently of one another a hydrogen atom or (C₁-C₄)-alkyl-.

17. (Currently amended) A compound of formula I as claimed in claim 14, wherein

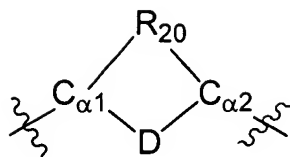
R₀ is phenyl or pyridyl, wherein phenyl and pyridyl independently of one another are mono-, di- or trisubstituted independently of one another by R²;

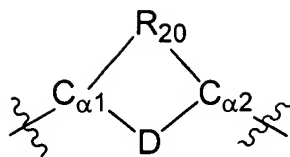
R² is a halogen[;]₁, -CN[;]₁, (C₁-C₄)-alkyloxy-, wherein alkyloxy is unsubstituted or substituted by halogen or an amino group[;]₁, or -(C₁-C₄)-alkyl, wherein alkyl is unsubstituted or substituted by an amino group or halogen;

Q and Q' are different and are a direct bond, or -O-;

X is -(C₁-C₃)-alkylene-, wherein alkylene is unsubstituted or mono-, di- or trisubstituted independently of one another by halogen, amino group or hydroxy group;

D is carbon;



wherein the ring comprising  is phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹,

wherein R₂₀, C_{α1}, and C_{α2} are as defined in claim 14;

~~the substructure of formula III is phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

R¹ is halogen[;]₁, -NO₂[;]₁, -CN[;]₁, -NH₂[;]₁, -OH[;]₁, -SO₂-NH₂[;]₁, (C₁-C₄)-alkylamino-, (C₁-C₄)-alkyloxy-, (C₁-C₄)-alkyl-, or (C₁-C₄)-alkylsulfonyl-, wherein the alkyl of each group is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³[;]₁, (C₆-C₁₄)-aryl, wherein aryl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³[;]₁, -C(O)-NR¹⁴R¹⁵, wherein R¹⁴R¹⁵ independently of one another are hydrogen atom or (C₁-C₄)-alkyl-[;]₁, R¹¹R¹²N-, wherein R¹¹ and R¹² are as defined above[;]₁ or -NR⁴R⁵;

R¹³ is halogen, -CF₃, -NH₂, -OH, (C₁-C₄)-alkyl-, or (C₁-C₄)-alkyloxy-;

R₁₀ is a hydrogen atom; and

V is a fragment of the formulae IIa, IIb, IIc or IId as defined above, wherein

L is a direct bond or (C₁-C₂)-alkylene-;

A is a hydrogen atom, -C(O)-OH, -C(O)-O-(C₁-C₄)-alkyl, -C(O)-NR⁴R⁵, or (C₁-C₄)-alkyl;

U is -NH₂, methyl, -NH-C(O)-O-(C₁-C₄)-alkyl, or -NH-C(O)-O-(CH₂)-phenyl;

M is a hydrogen atom or (C₁-C₃)-alkyl; and

R⁴ and R⁵ are independently of one another hydrogen atom or methyl.

18. (Currently amended) A compound of formula I as claimed in claim 14,
wherein

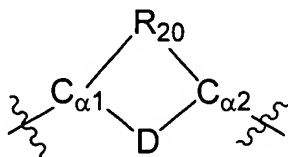
R₀ is phenyl, wherein phenyl is mono-, di- or trisubstituted independently of one
another by R²;

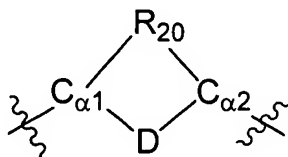
R² is halogen[;], (C₁-C₄)-alkyloxy-, wherein alkyloxy is unsubstituted or
substituted by halogen or an amino group; or -(C₁-C₄)-alkyl, wherein alkyl is
unsubstituted or substituted by an amino group or halogen;

Q and Q' are different and are a direct bond or -O-;

X is -(C₁-C₃)-alkylene-;

D is carbon;



wherein the ring comprising  is phenyl, wherein phenyl is
unsubstituted or mono-, di- or trisubstituted independently of one another by R¹,

wherein R₂₀, C_{α1}, and C_{α2} are as defined in claim 14;

~~the substructure of formula III is phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

R¹ is halogen[;]₁, -NO₂[;]₁, -CN[;]₁, -NH₂[;]₁, -OH[;]₁, -SO₂-NH₂[;]₁, (C₁-C₄)-alkylamino-, (C₁-C₄)-alkyloxy-, (C₁-C₄)-alkyl-, or (C₁-C₄)-alkylsulfonyl-, wherein the alkyl of each group is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³[;]₁, -C(O)-NR¹⁴R¹⁵, wherein R¹⁴R¹⁵ independently of one another are hydrogen atom or (C₁-C₂)-alkyl-[;]₁, R¹¹R¹²N-, wherein R¹¹ and R¹² are as defined above[;]₁ or -NR⁴R⁵;

R¹³ is halogen, -CF₃, -NH₂, -OH, (C₁-C₄)-alkyl-, or (C₁-C₄)-alkyloxy-;

R₁₀ is a hydrogen atom; and

V is a fragment of the formulae IIa, IIb, IIc or IId as defined above, wherein

L is a direct bond or (C₁-C₂)-alkylene-;

A is a hydrogen atom, -C(O)-OH, -C(O)-O-(C₁-C₄)-alkyl, -C(O)-NR⁴R⁵, or - (C₁-C₄)-alkyl;

U is -NH₂, methyl, -NH-C(O)-O-(C₁-C₄)-alkyl, or -NH-C(O)-O-(CH₂)-phenyl;

M is a hydrogen atom or methyl; and

R⁴ and R⁵ are independently of one another hydrogen atom or methyl.

19. (Currently amended) A compound of formula I as claimed in claim 14, wherein

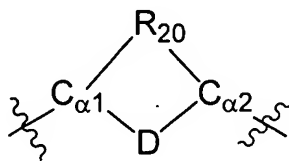
R₀ is phenyl, wherein phenyl is disubstituted independently of one another by R²;

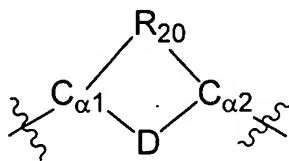
R^2 is halogen $[\cdot]_1$ (C₁-C₂)-alkyloxy-, wherein alkyloxy is unsubstituted or substituted by an amino group $[\cdot]_1$ or-(C₁-C₄)-alkyl, wherein alkyl is unsubstituted or substituted by an amino group;

Q and Q' are different and are a direct bond or -O-;

X is -CH₂-CH₂-;

D is carbon;



wherein the ring comprising  is phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹, and

wherein R₂₀, C_{α1}, and C_{α2} are as defined in claim 14;~~the substructure of formula III is phenyl, wherein phenyl is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹;~~

R¹ is halogen $[\cdot]_1$ -OH $[\cdot]_1$ -NH₂ $[\cdot]_1$ -C(O)-NR¹⁴R¹⁵, wherein R¹⁴R¹⁵ independently of one another are hydrogen atom or (C₁-C₂)-alkyl- $[\cdot]_1$ or (C₁-C₃)-alkyloxy-, or (C₁-C₃)-alkyl-, wherein the alkyl group of each is unsubstituted or mono-, di- or trisubstituted independently of one another by R¹³;

R¹³ is fluorine or chlorine;

R₁₀ is hydrogen atom; and

V is a fragment of the formulae IIa, IIb, IIc or IId as defined above; wherein

L is a direct bond or (C₁-C₂)-alkylene-;

A is a hydrogen atom, -C(O)-OH, -C(O)-O-(C₁-C₄)-alkyl, -C(O)-NR⁴R⁵, or -
(C₁-C₄)-alkyl;

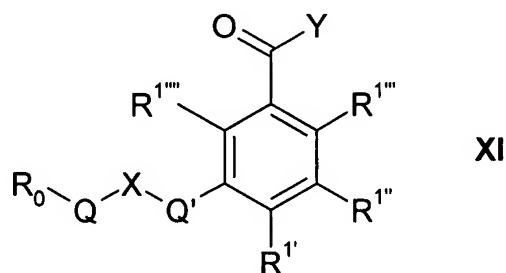
U is -NH₂, methyl, -NH-C(O)-O-(C₁-C₄)-alkyl, or -NH-C(O)-O-(CH₂)-phenyl;

M is a hydrogen atom; and

R⁴ and R⁵ are independently of one another hydrogen atom or methyl.

20. (Currently amended) A process for the preparation of a compound of the
formula I as claimed in claim 14, comprising

a) linking a building block of formula XI with a fragment of the formula XII,
wherein formula XI is:



wherein:

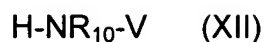
R₀, Q, Q', and X, are as defined in claim 14, and

R¹, R^{1''}, R^{1'''}, R^{1''''}, are a hydrogen atom or R¹ as defined in claim 14,

Y is a nucleophilically substitutable leaving group or a hydroxyl group,

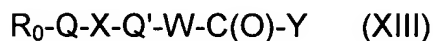
wherein R₀, Q, R^{1'}, Q' or X can also be present in protected form or in the form of
precursor groups, and

wherein formula XII is:

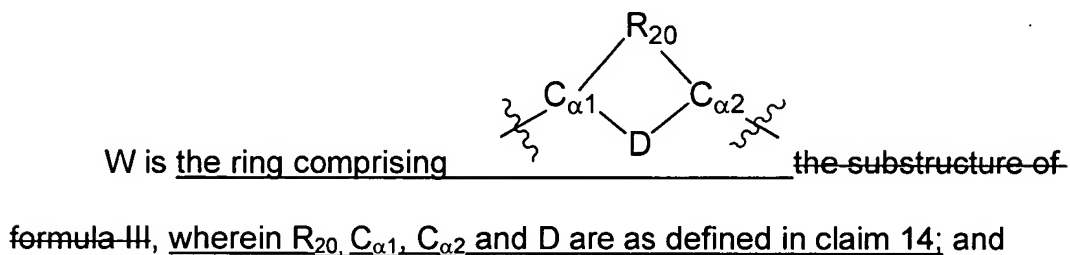


wherein R_{10} and V are as defined in claim 14, and can also be present in protected form or in the form of precursor groups, or

b) coupling a fragment of formula XIII with formula XII, wherein formula XIII is:



wherein R_0 , Q, Q', and X are as defined in claim 14,



Y is a nucleophilically substitutable leaving group or a hydroxyl group;

wherein R_0 , Q, Q', W, or X can also be present in protected form or in the form of precursor groups.

21. (Previously presented) The method of claim 10, wherein the thrombosis occurs as a result of at least one of thrombolytic therapy, surgery, a myocardial infarction, angina, or stroke.

22. (Presently presented) The method of claim 10, wherein the restenosis occurs as a result of at least one of angioplasty, coronary heart disease, adult respiratory distress syndrome, multi-organ failure, stroke, viral infections, cancer or a disseminated intravascular clotting disorder.

23. (Currently amended) The ~~method~~process of claim 20, wherein when R_0 , Q, $R^{1'}$, Q' or X is a hydroxy group, it is attached to a polystyrene resin.

24. (Currently amended) A method of treating blood coagulation disorders, inflammation, fibrinolysis, cardiovascular disorders, restenosis, transient ischemic attacks, and thrombosis comprising administering the pharmaceutical ~~preparation~~composition of claim 9 to a host in need thereof.

25. (Previously presented) The method of claim 24, wherein the thrombosis occurs as a result of at least one of thrombolytic therapy, surgery, a myocardial infarction, angina, or stroke.

26. (Previously presented) The method of claim 24, wherein the restenosis occurs as a result of at least one of angioplasty, coronary heart disease, adult

respiratory distress syndrome, multi-organ failure, stroke, viral infections, cancer or a disseminated intravascular clotting disorder.